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REMARKS

Claims 23, 25, 26, 30, 31, 33 and 34 have been amended. Claims 24, 27, 32 and 35 have been cancelled. New claim 36 has been added. It should be appreciated that the new claim 36 merely clarifies the invention as disclosed in the specification and drawings. Claims 23, 25-26, 28-31, 33-34 and 36 remain in the invention.

Claims 23 and 31 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Number 4,759,489 to Pigott. Applicant respectfully traverses this rejection.

U.S. Patent Number 4,759,489 to Pigott discloses a method of automobile body building by aligning a separate upper and lower body module that are joined together using a precision mating location for fitting the modules together. The invention of Pigott '489 is an improved method for automobile body building that is in contrast to the conventional practice of building the car body as an open box structure. (column 1, lines 10-19) The body assembly method of Pigott '489 includes the steps of first forming an upper body module 50 that incorporates the roof area and then forming a lower body module 78 that incorporates the floor area. The method also includes the steps of providing precision formed mating locations 62 on the upper and lower body modules 78 and utilizing the mating locations on the upper module as a reference for fitting of the interior parts and equipment into the upper module 50. It is contemplated that one module has a precision drilled hole 82 and the other module has a precision turned pin 62 in order to align the two modules with respect to each other. The method further includes the steps of fitting the upper and lower modules together by use of the mating locations after the interior parts and equipment have been fitted into both modules. In this example, the upper and lower modules are locked together at the mating locations by bolting. The modules are permanently joined at a joining station by welding.

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Pigott also discloses an apparatus for automobile building that includes two sets of workstations. The first workstation 20 includes an upstream station at which an upper body module 50 incorporating a body roof area is formed having a set of locations that reference a master body point and at least one substation where subassemblies are fitted to the upper module utilizing the locations on the module to define reference axes, to ensure precision mounting of the sub-assemblies. The second set of work stations 22 includes a similar upstream station for a lower module incorporating a body floor area, and a mating station at which the upper and lower modules and fitted sub-assemblies are mated together by use of the respective reference locations on the two modules. The apparatus also includes a joining station at which the mated upper and lower modules are permanently fixed together, such as by welding. Pigott '489 does not disclose a method of forming a joint between two members by defining a coverage portion and a fill portion and applying a viscous adhesive in a predetermined amount to secure the two members together, but rather a method of aligning two members using a precision mating surface.

In contradistinction, amended claims 23 and 31 clarify the invention as a method of forming a joint between two members during a manufacturing process using a viscous adhesive. The method includes the steps of positioning a first member to be in contact with a second member and the area of contact forms a joint. The first member includes a coverage portion extending along the first member from a first point on the first member to a second point, and a fill portion adjacent the coverage portion. Claim 31 is similar to claim 23 and includes further features. The method also includes the steps of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the coverage portion to form a joint interconnecting the first member with the second member. The adhesive amount and

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placement of adhesive is selected to keep seepage to a minimum and stress transfer to a maximum.

Pigott '489 does not disclose, anticipate or otherwise suggest the claimed invention of claim 23 or 31 as amended. Pigott '489 merely discloses an improved apparatus and method for aligning together vehicle body sections to form a vehicle body. In Pigott '489, the vehicle body is separated into an upper portion and a lower portion. The upper portion and lower portion include formed mating locations for alignment purposes, such as a hole in one member and a corresponding peg in another member. The mating locations are used to temporarily pin together the upper and lower body portions, which are then permanently joined by welding.

Pigott '489 does not disclose, anticipate or otherwise suggest a method that includes the step of defining a coverage portion and/or fill portion for the joint. Pigott '489 does not disclose, anticipate or otherwise suggest a method that includes the step of forming a joint by providing a first member having a coverage portion extending along the first member from a first point at a first end of the first member to another point at which the first member begins to curve to form a tangent portion. Pigott '489 also does not disclose, anticipate or otherwise suggest the step of providing a second fill portion extending from the second point to a line segment that is collinear to the tangent portion. Pigott '489 further does not disclose, anticipate or otherwise the step of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form a joint. A joint having a coverage portion and a fill portion and adhesive deposited along a predetermined portion of the flange coverage portion and the flange fill portion is not the same structure as a first member having a hole and a second member having a corresponding peg for temporarily fixing the first and second members together, and permanently welding the first and second

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members together. The function of the mating locations of Pigott '489 is to locate the first and second members with respect to each other and hold them together prior to permanently fixing them together, and not provide a surface area for forming an adhesive filled joint, as disclosed by the Applicant.

The Examiner indicated that Pigott '489 discloses an assembly line method (column 3, lines 3-34) wherein a variety of joints are made by use of an adhesive (FIG. 4, column 4, lines 53-64, and FIG. 17 and column 5, lines 1-10 and FIG. 19, columns 22-33). In column 3, lines 22-24, reference is made to the completed lower module passing through a sealer or adhesive station 28 before passing to a mating station. However, Pigott does not disclose or even suggest a method for applying the adhesive by defining a coverage and fill portion for the joint and the amount of adhesive deposited in each portion, as disclosed by the Applicant. In column 4, lines 53-64, Pigott indicates that a sealing and/or structural adhesive may be applied at the joint. Again, Pigott does not disclose or even suggest a method for applying the adhesive to the joint, including the amount or location, as disclosed by the Applicant. In FIGS. 17-19, which are described in column 5, lines 1-10 and lines 22-23, Pigott merely makes reference to a structural sealer 138, and a joint 174 and a structural sealer. Again, Pigott does not disclose or even suggest a method for applying the adhesive to the joint, as disclosed by the Applicant. Pigott does not disclose or suggest how much sealer to use, or where to apply the sealer. It is not enough for the Examiner to suggest that the assembly line method suggested by Pigott would have a predetermined coverage length, and that the coverage percentage would be a predetermined percentage of the coverage length. According to MPEP 706.02, for anticipation under 35 U.S.C. §102(b), there must be some teaching in the reference to suggest the method of forming a joint taught by the Applicant. Any features

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not taught directly must be inherently present. The Applicant respectfully submits that the requisite teachings are not present in Pigott '489 in the indicated passages.

Further, it is not enough for the Examiner to suggest that such teachings are implied by the definition of an assembly line. According to the Merriam-Webster dictionary, an assembly line is defined as:

1: an arrangement of machines, equipment, and workers in which work passes from operation to operation in direct line until the product is assembled;

2: a process for turning out a finished product in a mechanically efficient manner.

There is nothing in the Specification of Pigott '489 to suggest any other definition of an "assembly line" than the definition commonly utilized. Therefore, it is impermissible to assume that the definition of an assembly line includes a predetermined coverage length and that the coverage percentage would be a predetermined percentage of the coverage length, since this assumption is not supported in the Specification or by the commonly used definition of an assembly line.

Therefore, it is respectfully submitted that claims 23 and 31, as amended, and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. §102(b).

Claims 23, 28 and 31 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Number 5,849,122 to Kenmochi et al. Applicant respectfully traverses this rejection.

U.S. Patent Number 5,849,122 to Kenmochi et al. discloses a method of fabricating a vehicle body panel having a honeycomb sandwich structure. Kenmochi et al. '122 contemplates that the vehicle panel 14 will have a first plate 30, a second plate 22 and a honeycomb core 28 sandwiched between the first plate and the second plate. It is contemplated that the second plate 22 is an integral part of a structural panel of the vehicle

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body. It is also contemplated that the honeycomb sandwich structure is composed of a pre-formed sub-honeycomb panel 26 having a predetermined shape and includes the first plate 30 connected to a first surface of the honeycomb core 28.

The method includes the steps of strengthening the second plate 22 by connecting the structural panel 14 to a structural member, and the second plate 22 is integral to the structural panel 14 and the strength member is part of the vehicle body framework. The method also includes the step of pressing the pre-formed sub-honeycomb panel 26 against the second plate with an adhesive layer 24 therebetween, to connect a second surface of the honeycomb core to the second plate 22. The second surface of the honeycomb core is located opposite of the first surface. The honeycomb core 28 is made of a permeable, paper material, such that pressing the sub-honeycomb panel 26 against the second plate occurs immediately after a drying step conducted after washing of a painting stage of the vehicle body, to prevent the honeycomb core from getting wet. The step of pressing the sub-honeycomb panel also includes the step of releasing pressure formed within the sub-honeycomb panel 26 by the pressing step, to prevent damage to the sub-honeycomb core due to pressure inside a plurality of cells in the sub-honeycomb as a result of pressing onto the strengthened second plate. Kenmochi et al. '122 does not disclose a method of forming a joint between two members using an adhesive to secure the two members together.

Kenmochi et al. '122 does not disclose, anticipate or otherwise suggest the claimed invention of claim 23. Kenmochi et al. '122 merely discloses a method for constructing a vehicle body panel that has a first plate, a second plate, and a honeycomb core sandwiched between the first and second plate. Two adhesive layers are positioned between the honeycomb layer and the plates. This type of multi-layered structure is referred to in the art as a laminate structure, and is structurally distinguishable from a joint. There is nothing in

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the Specification, Drawings or Claims of Kenmochi '122 to suggest that they are equivalent structures. The Applicant defines a lap joint as the "selective interconnection of two substantially flat or planar members," while Kenmochi '122 defines a sandwich structure including a first plate 30, a honeycomb core adhesively connected to the first plate, and a second plate with an adhesive layer. The adhesive layer is defined by Kenmochi '122 as an "adhesive sheet having a substantial thickness" (column 7, lines 9-24). The lap joint defined by the Applicant is structurally distinguishable from the structure disclosed by Kenmochi et al. '122 since Applicant does not disclose two adhesive layers and an intermediate honeycomb layer.

The method disclosed by Kenmochi et al. '122 includes the steps of adhering the first plate to one of the opposite surfaces of the honeycomb core using an adhesive, to form a honeycombed panel having a predetermined shape. The method also includes the steps of forming a second plate that is part of the vehicle structure and connecting the structural panel to a strength member that is part of the framework to the vehicle body. The sub-honeycomb panel is pressed against the second plate, which is part of the structural panel. An intermediary adhesive layer is used to adhere the other major surface of the honeycomb core to the second plate, to make line-to-line contact between the two plates.

Kenmochi et al. '122 does not disclose, anticipate or otherwise suggest a method that includes the step of forming a joint by defining a coverage portion and a fill portion. Kenmochi et al. '122 does not disclose, anticipate or otherwise suggest a method that includes the step of forming a joint by providing a first member having a coverage portion extending along the first member from a first point at a first end of the first member to a second point at which the first member curves to form a tangent portion. Kenmochi et al. '122 also does not disclose, anticipate or otherwise suggest the step of providing a second fill

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portion extending from the second point to a line segment that is collinear to the tangent portion. Kenmochi et al. '122 further does not disclose, anticipate or otherwise the step of depositing adhesive along up to fifty percent of the coverage portion and up to ten percent of the second fill portion to form a joint. A joint having a flange coverage portion and a fill portion and adhesive deposited along a predetermined area of the coverage portion and the fill portion is not the same as a first member, a first adhesive layer interconnecting the first member and a honeycomb layer, and a second adhesive layer for interconnecting the second member to the combined honeycomb layer and first member, to provide line-to-line contact between the first and second members. The laminate structure including two adhesive layers and a honeycomb layer of Kenmochi et al. '122 is distinguishable from the joint structure disclosed by the Applicant.

There is nothing in the Specification, Drawings or Claims of Kenmochi et al. '122 to suggest that an assembly line method would include by definition a predetermined coverage length, and the coverage percentage would be a predetermined percentage of the coverage length for the adhesive layer. Absent such a teaching, it is impermissible to assume the feature is inherently present, for the reasons discussed previously with respect to Pigott. Therefore, it is respectfully submitted that claims 23, 28 and 31, as amended, and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. §102(b).

Claims 24-30, 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 4,759,489 to Pigott as applied to claims 23-31 above and further in view of U.S. Patent Number 5,362,120 to Cornille. Applicant respectfully traverses this rejection for the reasons set forth above with respect to the rejection under 35 U.S.C. §102(b), and further as follows.

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U.S. Patent Number 5,362,120 to Cornille discloses a vehicle body construction and method for inspection of adhesively secured joints therein. The vehicle body 10 includes a pair of structural body members 14, 16 having opposed surfaces and an adhesive 12 that forms a substantially concealed joint securing the opposed surfaces to each other to connect the pair of structural body members. One of the body members includes small inspection openings 22 formed through its opposing surface at spaced intervals to permit visual observation of whether there is adhesive between the opposed surfaces at the spaced intervals to provide an indication of the integrity of the adhesive joint.

The method of joining a pair of vehicle body members includes the steps of forming a first vehicle structural body member 14 having a first surface with inspection openings 22 at spaced intervals and a second vehicle structural body member having a second surface 16. The method also includes the steps of applying an adhesive on one of the surfaces, and placing the surfaces in opposition with one another with the adhesive 12 therebetween. The method further includes the steps of curing the adhesive to form an adhesive bond securing the surfaces together and forming a substantially concealed joint and observing visually through the inspection openings 22 for the presence of adhesive 12 as an indication of the strength of the adhesive bond. Cornille '120 discusses the problem that the Applicant is trying to solve at column 2, lines 17-26, that is, the problem of judging how much adhesive to use and preventing excess adhesive from seeping out. However, Cornille '122 is trying to solve the problem of joint integrity and discloses a method of solving the problem by inspecting the joint. Cornille '120 does not disclose a method of forming a joint between two members by defining a coverage portion and a fill portion and depositing a predetermined amount of adhesive in the coverage and fill locations, respectively.

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None of the references, alone or in combination with each other, teach or otherwise suggest the claimed invention of claims 24-30 and 32-33. Specifically, the Pigott '489 reference merely discloses a method for aligning an upper module and a lower body module that are temporarily secured using a pin in a hole, and permanently secured by welding. Cornille '120 merely discloses a method of inspecting a joint that includes placing a plurality of holes in the opposed body members to visually inspect whether there is adhesive between the opposed surfaces as an indication of the integrity of the bond. Pigott '489 and Cornille '120 do not disclose a method of forming a joint by defining a coverage portion and a fill portion, or a method disclosing a coverage portion extending along the first member from a first point at a first end of the first member to another point at which the first member curves to form a tangent portion. Pigott '489 and Cornille '120 do not disclose a method of forming a joint having a fill portion extending from the second point to a line segment that is collinear to the tangent portion. Further, Pigott '489 and Cornille '120 do not contemplate adhesive deposited along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form the joint.

The combination of references, if combinable, would not render obvious Applicant's invention as claimed in claims 25, 26, 28-30 and 33. The combination of Pigott '489 and Cornille '120 would yield an alignment method and apparatus for constructing a vehicle body that includes a vehicle body which is separated into an upper portion and a lower portion. The upper portion and lower portion would include formed mating locations, such as a hole in one member and a corresponding peg in another member. The upper and lower portion would also include a plurality of spaced apart holes in opposed surface that are to be bonded together. The mating locations are used to temporarily pin together the upper and lower body portions. Adhesive is utilized to permanently join the upper and lower body portions, and the

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holes provide for visual inspection of the presence of adhesive. Such a combination is distinguishable from Applicant's invention, in that the Applicant discloses a method of forming a joint by providing a first member having a coverage portion extending along the first member from a first point at a first end of the first member to another point, and a second flange fill portion adjacent the coverage portion. Adhesive is deposited along up to fifty percent of the coverage portion and up to ten percent of the fill portion to form the joint.

The unobvious feature of the present invention of claims 23 and 31 is the placement location in the coverage and fill portions of the joint and amount of adhesive deposited in the coverage and fill portions to form a joint between two members. The Applicant states that one problem with the prior art is that there are not standardized procedures for applying adhesive during a manufacturing process. While the Examiner suggests that it would be obvious to one of ordinary skill in the art to conduct routine experimentation to achieve the coverage area in order to balance the demands of bond strength, this is the problem the Applicant is trying to solve. It is impractical to conduct experiments during the assembly process. At the same time, consistency in the manufacturing process is important to ensure that each item produced is of consistent quality. Applicant provides a simple, but elegant method for solving a recognized manufacturing problem.

Therefore, it is respectfully submitted that claims 24-30, 32 and 33 are allowable over the rejection under 35 U.S.C. §103(a).

Claims 24-27, 29-30 and 32-35 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 5,849,122 to Kenmochi as applied to claim 1 above and further in view of U.S. Patent Number 5,362,120 to Cornille. Applicant respectfully traverses this rejection for the reasons set forth above.

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In addition, none of these references, alone or in combination with each other, teach or otherwise suggest the claimed invention of claims 23 or 31 as amended or new claim 36. Specifically, the Kenmochi et al. '122 reference merely discloses a method of building an automobile body using a first panel, a first adhesive layer, a honeycomb layer, a second adhesive layer and a second panel, to form a sandwich structure. Cornille merely discloses a method of inspecting the integrity of joints that includes placing a plurality of holes in the opposed body members to visually inspect whether there is adhesive between the opposed surfaces as an indication of the integrity of the bond. Kenmochi et al. '122 and Cornille do not disclose a method of forming a joint between a first member having a coverage portion extending along the first member from a first point at a first end of the first member to a second point. Kenmochi et al. '122 and Cornille '120 do not disclose a joint having a second fill portion that is adjacent to the coverage portion. Further, Kenmochi et al. '122 and Cornille '120 do not define the amount of adhesive to use or where to place the adhesive along a predetermined area of the first coverage portion and a predetermined area of the second fill portion to form a joint.

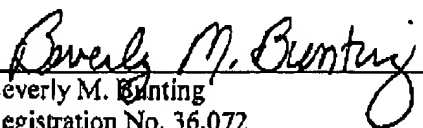
The combination of references, if combinable, would not render obvious Applicant's invention. The combination of Kenmochi et al. '122 and Cornille '120 would yield a method and apparatus for constructing a vehicle body panel that includes a first and a second panel opposed to the first panel, a paper honeycomb layer disposed therebetween, and two adhesive layers. The upper and lower panels would also include a plurality of spaced apart holes in the opposed surfaces that are to be bonded together. Adhesive fills in around the honeycomb middle layer, and the holes provide for visual inspection of the adhesive bond between the panels. Such a combination is distinguishable from Applicant's invention, in that the present invention discloses that a method of forming a joint by providing a first coverage portion

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extending along the first member from a first point to a second point, and a second fill portion adjacent the coverage portion. Adhesive is deposited along up to fifty percent of the first coverage portion and up to ten percent of the second fill portion to form the joint. The unobvious feature of the present invention of claims 23, 31 and 36 is in the placement and amount of adhesive used to form the joint within the coverage and fill portions of the joint. Therefore, it is respectfully submitted that claims 23 and 31, as amended, and the claims dependent therefrom and new claim 31 are allowable over this rejection under 35 U.S.C. §103(a).

Based on the above, Applicant submits that the claims are in a condition for allowance, which allowance is respectfully solicited. If the Examiner finds to the contrary, it is respectfully requested that the undersigned in charge of this application be called at the telephone number given below to resolve any remaining issues.

Respectfully submitted,


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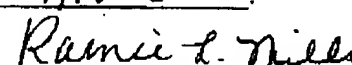
Attorney for Applicant

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CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being sent to the United States Patent Office via facsimile (703) 305-3599 on 9/15/03.

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Rainie L. Mills